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Practitioner's Docket No. 1975.99C

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Box Patent Application
 Assistant Commissioner for Patents
 Washington, D.C. 20231

NEW APPLICATION TRANSMITTAL

Transmitted herewith for filing is the patent application of

Inventor(s): Robert C. Heath; Jett E. Stubbs

For (title): DISPOSABLE LID FOR A CUP

1. Type of Application

This transmittal is for an original (nonprovisional) application.

2. Papers Enclosed

A. Required for filing date under 37 C.F.R. 1.53(b) (Regular) or 37 C.F.R. 1.153 (Design)
 Application

8 Page(s) of Specification

3 Page(s) of Claims

3 Sheet(s) of Drawing(s)—Informal

CERTIFICATION UNDER 37 C.F.R. 1.10*

(Express Mail label number is *mandatory*.)(Express Mail certification is *optional*.)

I hereby certify that this correspondence and the documents referred to as attached therein are being deposited with the United States Postal Service on this date 1-24-00 in an envelope as "Express Mail Post Office to Addressee," mailing Label Number EL157334785US, addressed to the: Assistant Commissioner for Patents, Washington, D.C. 20231.

MARCIA A. SNOW

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Marcia A. Snow
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B. Other Papers Enclosed

2 Page(s) of declaration and power of attorney
1 Page(s) of abstract

3. Additional Papers Enclosed

Information Disclosure Statement (37 C.F.R. 1.98)

Form PTO-1449 (PTO/SB/08A and 08B)

Citations

4. Declaration or Oath

Enclosed

Executed by:

- inventors.

5. Inventorship Statement

The inventorship for all the claims in this application is the same.

6. Language

English

7. Fee Calculation (37 C.F.R. 1.16)

Regular Application

| CLAIMS AS FILED | | | | | |
|--|--------------|---------------------|--------------|----------|-----------------------------------|
| Claims | Number Filed | Basic Fee Allowance | Number Extra | Rate | Basic Fee 37 CFR 1.16(a) \$690.00 |
| Total Claims (37 CFR 1.16(c)) | 10 | - 20 = | 0 x | \$18.00 | \$0.00 |
| Independent Claims (37 CFR 1.16(b)) | 3 | - 3 = | 0 x | \$78.00 | \$0.00 |
| Multiple Dependent Claim(s), if any (37 CFR 1.16(d)) | | | + | \$260.00 | \$0.00 |
| Filing Fee Calculation | | | | | \$690.00 |

8. Small Entity Statement(s)

Statement that this is a filing by a small entity under 37 CFR 1.9 and 1.27 is attached.

Filing Fee Calculation (50% of above) \$345.00

9. Fee Payment Being Made at This Time

Enclosed

Filing Fee \$345.00

Total Fees Enclosed \$345.00

10. Method of Payment of Fees

Check in the amount of \$345.00 is attached.

11. Authorization to Charge Additional Fees

The Commissioner is hereby authorized to charge the following additional fees by this paper and during the entire pendency of this application to Account No. 03-1127.

37 C.F.R. 1.16(a), (f) or (g) (filing fees)

37 C.F.R. 1.16(b), (c) or (d) (presentation of extra claims)

37 C.F.R. 1.16(e) (surcharge for filing the basic filing fee and/or declaration on a date later than the filing date of the application)

37 C.F.R. 1.17(a)(1)-(5) (extension fees pursuant to § 1.136(a))

12. Instructions as to Overpayment

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SIGNATURE OF PRACTITIONER

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01/24/00
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Practitioner's Docket No. 1975.99C

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Heath, Robert C.; Stubbs, Jett E.
Application No.:
Filed on:
Title: DISPOSABLE LID FOR A CUP

STATEMENT CLAIMING SMALL ENTITY STATUS
(37 CFR 1.9(f) and 1.27(b)—INDEPENDENT INVENTOR

As a below named inventor, I hereby state that I qualify as an independent inventor, as defined in 37 CFR 1.9(c), for purposes of paying reduced fees to the United States Patent and Trademark Office under Sections 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office, with regard to the invention described in the specification filed herewith, with title as listed above.

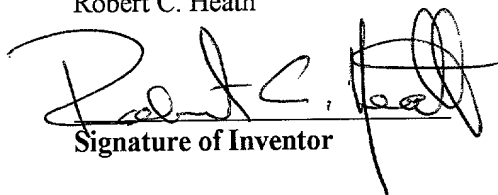
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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

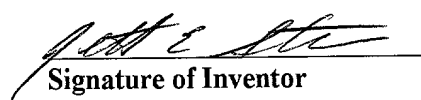
Robert C. Heath


Signature of Inventor

Date

1/7/2000

Jett E. Stubbs


Signature of Inventor

Date

1/7/2000

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UNITED STATES PATENT APPLICATION

FOR

DISPOSABLE LID FOR A CUP

DISPOSABLE LID FOR A CUP

BACKGROUND OF THE INVENTION:

This invention relates generally to disposable containers and more particularly concerns disposable lids for cups.

5 There are many variations of disposable lids for cups for hot and cold beverages. Many are designed for use with a straw and do not permit drinking directly through an opening in the lid. All of them, whether used with or without a straw, are attached to a cup by an outer rim that clamps around the outside wall of the lip of the cup. Some, in order to provide additional rigidity to the lid, have a slightly depressed inner portion which fits within the rim of the cup and, in some cases, may abut the upper portion of the cup on its inner wall. However, the lip of the cup is not clamped between the outer rim and the inner depression. This becomes all too apparent when, as the cup is slightly squeezed during use, the lid pops off. Moreover, those lids having the depression above described generally extend horizontally from the bottom of the depression toward the center of the cup so as to obstruct or cause turbulence in the flow of liquid from the cup across the depression. As for lids designed for drinking directly through a discharge port in the lid, the upper portion is substantially flat or at best at a modest angle approximating ten degrees so that the user's nose strikes the top of the lid as the contents are consumed. A significant rearward tilting of the head is required if the contents of the cup are to be fully consumed. Anyone who has attempted this feat while driving a motor vehicle can attest to the difficulties experienced in observing the highway as the last drop of coffee is drained from the container.

25 Considering the above scenarios, obstructed or turbulent flow, inadvertent disengagement of the lid from the cup and excessive tilting of the head in emptying the cup contents are major contributors to inconvenience, frustration and spills in the use of cups with disposable lids. These problems are especially exacerbated

for young children learning to drink from a cup. For convenience and for sanitary reasons, the use of disposable training cups and lids for children is highly desirable, but no disposable lids suitable for such purpose are available.

It is, therefore, an object of this invention to provide a disposable lid for a cup which firmly grips the inside and outside walls of the lip of the cup. Another object of this invention is to provide a disposable lid for a cup which seats firmly on the rim of the cup. A further object of this invention is to provide a disposable lid for a cup which permits unobstructed flow of liquid from the cup to the discharge port. Yet another object of this invention is to provide a disposable lid for a cup which permits non-turbulent flow of liquid from the cup to the discharge port. It is also an object of this invention to provide a disposable lid for a cup which facilitates unobstructed and non-turbulent flow of liquid to its discharge port from all directions. Still another object of this invention is to provide a disposable lid for a cup which is contoured for comfortable insertion into the mouth of the user. An additional object of this invention is to provide a disposable lid for a cup which is contoured for comfortable use by young children.

SUMMARY OF THE INVENTION:

In accordance with the invention, a disposable lid for a cup has an annular clamp adapted to be seated on the rim of the cup and to grip the interior and exterior walls of the lip of the cup so as to firmly fix the lid in place on the cup. A spout extends upwardly from the rim to a liquid discharge port at the apex of the spout. The inner wall of the clamp and the inner wall of the spout converge smoothly to the discharge port so as to permit unobstructed, non-turbulent flow of liquid from the cup to the spout discharge port. The preferred discharge port is approximately an elongated rectangle or ellipse so as to conform to a narrow passage formed by the lips of the user. The preferred spout is frustoconical with a truncation in the shape of a horizontal plane tangent to the bottom wall of a horizontal cylinder and a base of inside diameter equal to the top inside diameter of the clamp so as to facilitate the unobstructed, non-turbulent flow of liquid to the discharge port from all directions. The preferred spout also has a height not less than $1/4$ and not more than $3/4$ of its base inside diameter so as to permit the discharge port to be comfortably received between the lips of the user without diminishing the desired flow characteristics.

Most preferably, the clamp has a circular rim with inner and outer edges and a bottom face adapted to be seated on a rim of the cup. An inner inverted frustoconical lip extends downwardly from the inner edge and an outer frustoconical lip extends downwardly from the outer edge of the clamp rim. The inner lip has serrations and the outer lip has nodules on its inner wall. The serrations and nodules cooperate so that the lips of the clamp grip the lip of the cup firmly therebetween. Preferably, the nodules are aligned between the serrations. For added strength and rigidity, approximately radial vertical walls extend upwardly from the horizontal portion of the truncation to the cylindrical portion of the truncation. An opening may also be provided in the horizontal portion of the truncation to

[illegible]

BRIEF DESCRIPTION OF THE DRAWINGS:

Other objects and advantages of the invention will become apparent upon reading the following detailed description and upon reference to the drawings in which:

5 FIGURE 1 is a side perspective view of a preferred embodiment of the disposable lid;

 FIGURE 2 is a bottom perspective view of the lid of FIGURE 1; and

 FIGURE 3 is a diametric cross-sectional view taken through the center of the discharge port of the lid of FIGURE 1.

10 While the invention will be described in connection with a preferred embodiment, it will be understood that it is not intended to limit the invention to that embodiment. On the contrary, it is intended to cover all alternatives, modifications and equivalents as may be included within the spirit and scope of the invention as defined by the appended claims.

DETAILED DESCRIPTION:

Turning to the Figures, a preferred embodiment of the disposable lid for cup is illustrated. As shown, a typical cup C to be covered has outer sidewalls 11 and inner sidewalls 13 which extend downwardly from the rim 15 at the lip 17 of the cup C to the bottom 19 of the cup C. Typically, the cup C has an inverted frustoconical shape as shown.

The disposable lid L for the cup C consists of an annular clamp 21 from which upwardly extends a spout 23 to a liquid discharge port 25 at the apex 27 of the spout 23. As shown, the inner wall 31 of the clamp 21 meets the inner wall 33 of the spout 25 at a smooth point of convergence 35 so that liquid can flow from the cup across the inner wall 31 of the clamp 21 and the inner wall 33 of the spout 23 in a pattern of unobstructed and nonturbulent flow. The upper surface of the spout 23 is defined by a truncation 37 consisting of a horizontal plane 39 which extends tangentially to the bottom wall of a horizontal cylinder 41. The inside base diameter 43 of the spout 23 is equal to the inside diameter 45 at the top of the clamp 21, these diameters being coincident with the point of smooth conveyance 35 previously discussed. The height 47 of the spout 23 from its base diameter 43 to its apex 27 is empirically appropriately not less than 1/4 nor more than 3/4 the inside diameter 43 of the base of the spout 23. In this configuration, the smooth junction of the clamp 21 and the spout 23, the cylindrical portion 41 of the truncation 47 and the frustoconical wall 49 of the spout 23 all combine to provide the desired unobstructed and nonturbulent flow of liquid from the cup C to the discharge port 25 of the lid L.

Considering the clamp 21 in greater detail, it consists of a circular rim 51 having an inner edge 53, an outer edge 55 and a bottom face 57. An inverted frustoconical lip 61 extends downwardly from the inner edge 53 and an outer frustoconical lip 63 extends downwardly from the outer edge 55 so that the inner

and outer sidewalls 11 and 13 of the lip 17 of the cup C can be inserted between the clamp lips 61 and 63 until the rim 15 of the cup C strikes the bottom face 57 of the clamp 21. As can best be seen in Figure 2, the inner lip 61 has serrations 65 which cooperate with nodules 67 on the inner wall 69 of the outer lip 63 of the clamp 21 to firmly grip the lip 17 of the cup C therebetween. Thus, the disposable lid L can be firmly seated on the rim 15 of the cup C while the lips 61 and 63 of the clamp 21 firmly grip against the inner and outer walls 11 and 13 of the cup C to firmly secure the lid L to the cup C even if the walls 11 of the cup C should be moderately distorted by the grip of the user.

In order to reinforce or strengthen the lid L, approximately radial vertical walls 71 and 73 may be used to connect the horizontal plane 39 of the lid L to the cylindrical portion 41 of the lid L. As shown, the walls 71 and 73 extend at approximately a 120 degree angle away from the apex 27 of the spout 23. An opening 75 may also be provided in the horizontal plane 39 of the lid L to facilitate insertion of a straw into the cup C and to provide an air passage to prevent creation of a vacuum in the cup C during use with the lid L.

The liquid discharge port 25 at the apex 27 of the spout 23 is an elongated rectangle or elliptical opening to facilitate insertion of the discharge port 25 between the lips of the user. In addition, the curvature of the truncation 37, in cooperation with the height 47 of the spout 23 in relation to its diameter 43, allows the user to drink from the lid L in relative comfort without distortion of the position of the mouth or excessive tilting of the cup C as would be required if the truncation 37 were to strike the nose of the user during use.

Thus, it is apparent that there has been provided, in accordance with the invention, a disposable lid for a cup that fully satisfies the objects, aims and advantages set forth above. While the invention has been described in conjunction with a specific embodiment thereof, it is evident that many alternatives,

[illegible]

WHAT IS CLAIMED IS:

1 **1.** A disposable lid for a cup comprising an annular clamp adapted to be
 2 seated on a rim of the cup and to grip inner and outer walls of a lip of the cup
 3 inserted therein and a spout extending upwardly from said rim to a discharge port
 4 at an apex thereof, an inner wall of said clamp and an inner wall of said spout
 5 converging smoothly to said discharge port.

1 **2.** A disposable lid for a cup comprising an annular clamp adapted to be
 2 seated on a rim of the cup and to grip inner and outer walls of a lip of the cup
 3 inserted therein and a frustoconical spout extending upwardly from said rim to a
 4 discharge port at an apex thereof, said spout having a truncation in the shape of a
 5 horizontal plane tangent to a bottom wall of a horizontal cylinder and a base inside
 6 diameter equal to a top inside diameter of said clamp whereby an inner wall of said
 7 clamp and an inner wall of said spout converge smoothly to said discharge port.

1 **3.** A lid according to claim 2, said clamp comprising a circular rim having
 2 inner and outer edges and a bottom face adapted to be seated on a rim of the cup,
 3 an inner lip extending downwardly from said inner edge and an outer lip extending
 4 downwardly from said outer edge, said inner and outer clamp lips being cooperable
 5 to grip a lip of the cup inserted therebetween.

1 **4.** A disposable lid for a cup comprising a circular rim having inner and
2 outer edges and a bottom face adapted to be seated on a rim of the cup, an inner
3 inverted frustoconical lip extending downwardly from said inner edge and an outer
4 frustoconical lip extending downwardly from said outer edge, said inner lip having
5 serrations therein and said outer lip having nodules on an inner wall thereof, said
6 serrations and said nodules being cooperable to grip a lip of the cup inserted
7 therebetween, and a frustoconical spout extending upwardly from said lid rim to a
8 discharge port at an apex thereof, said spout having a truncation in the shape of a
9 horizontal plane tangent to a bottom wall of a horizontal cylinder and a base inside
10 diameter equal to a top inside diameter of said inner lip whereby an inner wall of
11 said inner lip and an inner wall of said spout converge smoothly to said discharge
12 port.

1 **5.** A lid according to claim **4**, said spout having approximately radial
2 vertical walls extending upwardly from a horizontal portion of said truncation to a
3 cylindrical portion of said truncation.

1 **6.** A lid according to claim **4** further comprising means in a horizontal
2 portion of said truncation for permitting insertion of a straw through said spout into
3 the cup.

1 **7.** A lid according to claim **4**, said nodules being aligned between said
2 serrations.

1 **8.** A lid according to claim **4**, said discharge port being approximately
2 rectangular.

1 **10.** A lid according to claim **4** being integrally formed of plastic and having
2 a thickness of approximately 15 mils.

ABSTRACT OF THE DISCLOSURE

A disposable lid for a cup has an annular clamp which is adapted to be seated on the rim of the cup and to grip the interior and exterior walls of the lip of the cup so as to firmly fix the lid to the cup and a frustoconical spout which extends upwardly from the rim to a liquid discharge port at the apex of the spout, the spout having a truncation in the shape of a horizontal plane tangent to the bottom wall of a horizontal cylinder and a base of inside diameter equal to the top inside diameter of the clamp so as to permit an unobstructed, non-turbulent flow of liquid from the cup to the discharge port. Preferably, the clamp has a circular rim with inner and outer edges and a bottom face adapted to be seated on a rim of the cup and an inner inverted frustoconical serrated lip extending downwardly from the inner edge and an outer frustoconical nodulous lip extending downwardly from the outer edge which cooperate to grip the lip of the cup therebetween.

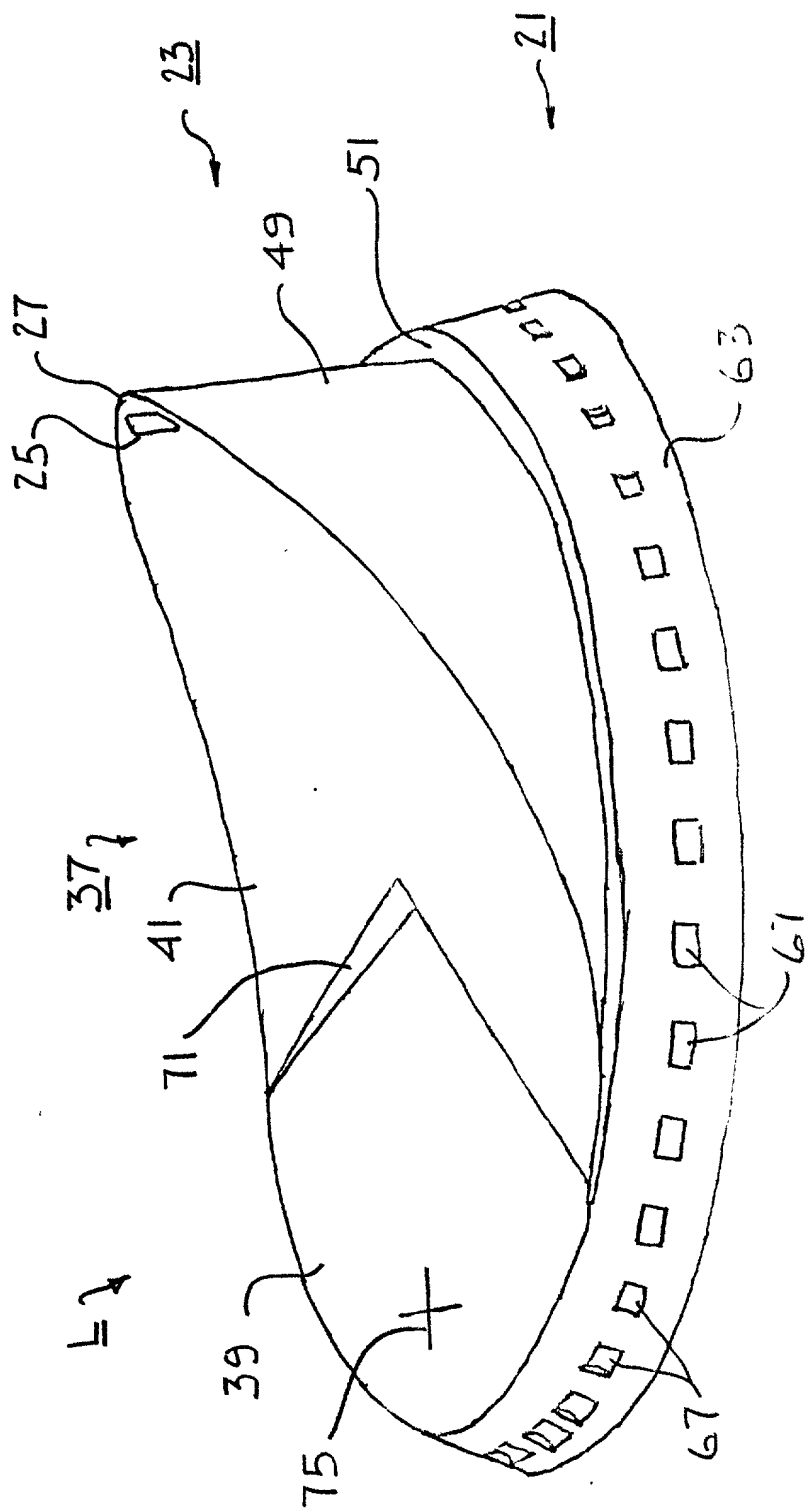


Fig. 1

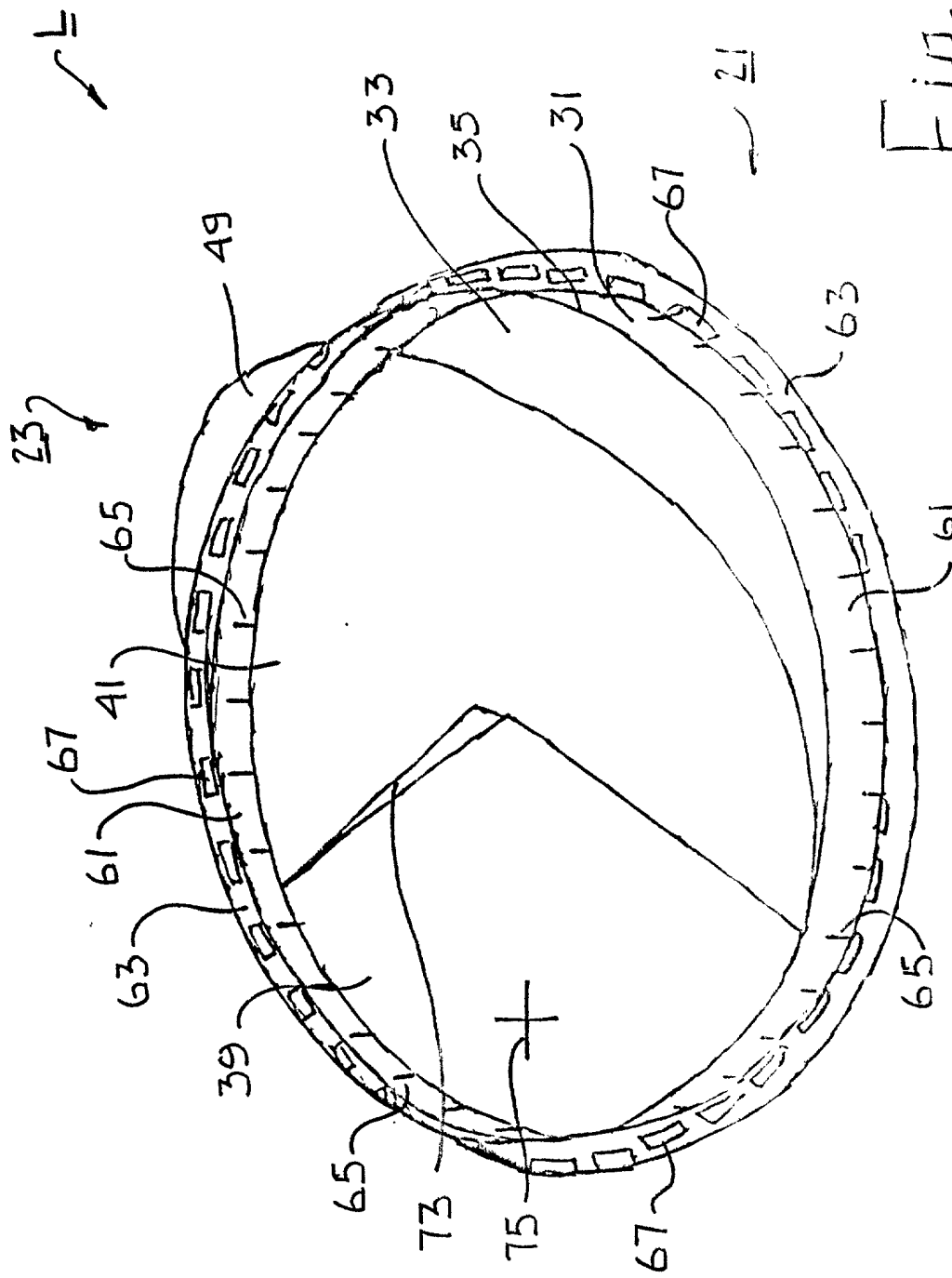


Fig. 2

COMBINED DECLARATION AND POWER OF ATTORNEY

(ORIGINAL, DESIGN, NATIONAL STAGE OF PCT, SUPPLEMENTAL, DIVISIONAL,
CONTINUATION, OR C-I-P)

As a below named inventor, I hereby declare that:

TYPE OF DECLARATION

This declaration is for an original application.

INVENTORSHIP IDENTIFICATION

My residence, post office address and citizenship are as stated below, next to my name. I believe that I am the original, first and sole inventor (*if only one name is listed below*) or an original, first and joint inventor (*if plural names are listed below*) of the subject matter that is claimed, and for which a patent is sought on the invention entitled:

TITLE OF INVENTION

DISPOSABLE LID FOR A CUP

SPECIFICATION IDENTIFICATION

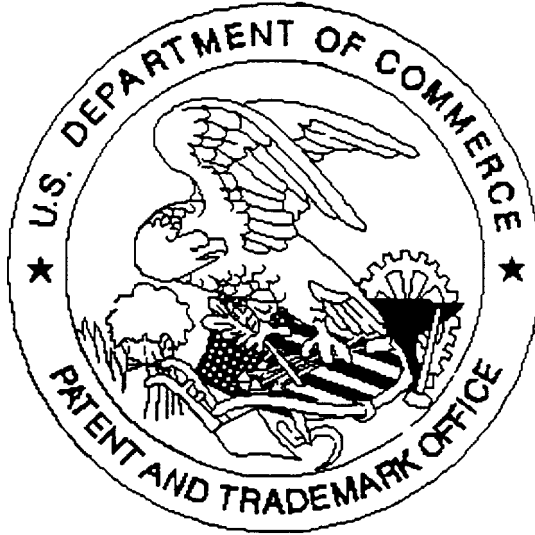
The specification is attached hereto.

ACKNOWLEDGMENT OF REVIEW OF PAPERS AND DUTY OF CANDOR

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information, which is material to patentability as defined in 37, Code of Federal Regulations, § 1.56, and which is material to the examination of this application, namely, information where there is a substantial likelihood that a reasonable Examiner would consider it important in deciding whether to allow the application to issue as a patent, and in compliance with this duty, there is attached an information disclosure statement, in accordance with 37 CFR 1.98.

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